

ARTISTS, ARCHITECTS AND ENGINEERS: A FURTHER STUDY OF VISUAL PREFERENCES SCALES¹

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Welsh Figure Preference Test (WFPT) protocols from 84 outstanding individuals in their respective fields--28 artist, 30 architects, and 26 engineers--were scored for three scales that are of potential interest in personality assessment: Conformance (CF), Intellectence (IN), and Origence (OR). Significant differences were found among the three groups on three scales, differences that had been predicted on the basis of a recently developed two-dimensional personality model and previous research with the WFPT. The findings for these three selected WFPT scales served to effectively differentiate these contrasting modes of visual experience, as exemplified by the three groups of outstanding individuals.

En este estudio se utilizaron 84 protocolos del Welsh Figure Preference Test (WFPT) de individuos sobresalientes en sus respectivos campos: 28 artistas, 30 arquitectos y 26 ingenieros. Se calificaron tres escalas que tienen interés potencial en la medición de la personalidad: Conformidad (CF), Intelectualidad (IN) y Originalidad (OR). Se encontraron diferencias significativas entre los tres grupos en las tres escalas, diferencias estas que se habían predecido sobre la base de un modelo de personalidad bi-dimensional que había sido recientemente creado así como sobre investigaciones recientes con el WFPT. Los resultados en las tres escalas seleccionadas sirvieron para diferenciar efectivamente las formas contrastantes de las experiencias visuales tal como lo ejemplifican los tres grupos de sujetos.

In a previous report by Holtzman, Swartz, and Thorpe (1971) it was found that highly selected advanced students in art, architecture, and engineering differed in predicted ways on a number of variables from the Holtzman Inkblot Technique (HIT) (Holtzman, Thorpe, Swartz, & Herron, 1961) and on certain other measures

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from the battery of tests administered. One of the tests included was the Welsh Figure Preference Test (WFPT) (Welsh, 1959) from which nine scales were examined. These scales were derived rationally and comprise objectively categorized figures related to the stimulus characteristics and visual configuration of the test items.

The present study investigates three scales, developed by empirical analysis of item response, that are of potential interest in personality assessment.

Method and Procedure

A "conformance" scale, CF, was devised previously by finding a set of items on which there was the greatest agreement in preference by 150 people-in-general and 50 artists (Welsh, 1959). The scale comprises 38 items, 13 Like and 25 Don't Like, with scoring in the direction of agreement with consensus. Adult groups typically average 27 or 28 while high school and college students generally fall slightly lower with means of 25 or 26. Distributions are highly skewed with standard deviations running about 5.0.

Younger age groups, however, disagree with adult preferences and score markedly lower although there seems to be a fairly rapid rise in means with increasing age. Subjects at the pre-school level average only 16.9 (Smith, 1962) while those six to eight years of age achieve a mean of 19.2 (Welsh, 1959). Watson (1964) found a steady increase from the age of seven to fifteen but noted differences related to intellectual level with a progression in means for combined age groups as follows: mentally retarded, 20.9; children in regular classes, 22.6; gifted, 25.3. Differences between average and gifted students seem to disappear by high school age, however. Harris (1961) reported a mean of 25.8 for unselected 9th and 10th grade students while highly talented and gifted adolescents at a special school produced a mean of 25.9 (Welsh, 1969a). For high school and college level subjects, CF scores are uncorrelated with intelligence.

Although a sample of artists was used in developing CF, the scale has proved to be negatively correlated with an art scale that effectively differentiates artists from non-artists (Barron & Welsh, 1952; Rosen, 1955; Raychaudhuri, 1963). In the study of talented and gifted adolescents mentioned above, CF and the Revised Art scale correlate $-.47$ for males and $-.55$ for females. In a study of attitude change in undergraduate women Wrightsman and Cook (1965) found a correlation of $-.48$ between the original Barron-Welsh Art Scale and CF.

Research in India by Maitra, Mukerji, and Raychaudhuri (1967) showed that CF differentiates adolescent delinquents with artistic ability from controls and also artistic adult criminals from controls. Medians were reported as 17.5 versus 22.5 and 21.5 versus 28.5 for the four groups, respectively. The latter value for control adults is very close to that of American adults and indicates that such figure preferences may be relatively independent of culture. This finding seems to be true also for Egyptian subjects (Welsh, 1969b).

The possibility of occupational differences on CF is suggested further by correlations with scales from the Strong Vocational Interest Blank (SVIB) for gifted adolescent males. For 527 subjects the correlation with Engineering is $.14$ ($p = .01$) while the values for Artist and for Architect are $-.04$ and $.04$, respectively.

On the basis of the above findings it would be expected that the subject groups in the Holtzman, et al study (1971) might differ on the CF scale. Two predictions were made: first, that the artists would score lower than the architects and the engineers; and second, because of their selection, that all three groups would fall below the mean for ordinary adults.

Results and Discussion

Table 1 shows that the three groups differ significantly on CF with the artists' mean of 20.75 much lower than those of the architects (25.63) and the engineers (26.15). For the latter two groups, however, t is only .43. It is apparent, therefore, that the artists are deviant on this scale. At the same time it may be noted that all three groups fall below the original adult male mean of 27.89 reported earlier (Welsh, 1959, p. 30), as expected.

Recently, scales for "origence", OR, and for "intellectence", IN, have been developed especially for the WFPT to afford a measure on that test of hypothetical dimensions proposed as a two-dimensional personality model hypothetical dimensions proposed as a two-dimensional personality model List (Welsh, 1967; 1969c),

TABLE I

MEANS, WITHIN-GROUP STANDARD DEVIATIONS, F-RATIOS, AND SIGNIFICANCE LEVELS FOR THREE OCCUPATIONAL GROUPS ON WFPT CF, IN, AND OR SCALES

	Artists (N=28)	Architects (N=30)	Engineers (N=26)	SD	F	P
CF: Conformance	20.75	25.63	26.15	5.10	12.48	.001
IN: Intellectence	38.04	40.17	34.27	5.97	7.95	.001
OR: Origence	46.89	48.10	29.88	18.06	10.40	.001

the Minnesota Multiphasic Personality Inventory, and the Strong Vocational Interest Blank (Saunders, 1968; Welsh, 1971). The present WFPT scales contain items as follows: OR, 93 (44L, 49DL) and IN, 69 (34L, 35DL).

Origence contrasts those at the low end of the dimension who prefer orderly, systematic, regular, explicit, and well-structured situations with the high origent person who is more at home in conditions that are open, diffuse, subtle, implicit, and nonstructured.

Intellectence, on the other hand, differentiates predilection at the low end for concrete, literal, pragmatic, and practical experience from the high end which stresses abstract, conceptual, figurative, and symbolic interests.

The model proposes that the dimensions are conceptually independent although conjointly related to observational data in predictable ways, and that scales designed to measure the dimensions should be psychometrically uncorrelated.

For example, occupations at the low end of intellectence such as banker and salesman should differ on origence with the latter being higher; at the other end of intellectence anthropologists should be higher on origence than astronomers. Although both advertising men and journalists lie at the upper end of origence, the latter should be relatively higher on intellectence; at the low end of origence, accountants would not fall as high on intellectence as statisticians.

Predictions for WFPT IN and OR scales for the present subjects can be based on hypotheses from several sources. In terms of the logic of the selection of these subjects it would be expected that the engineers might fall relatively lower on both

scales than the artists with the architects lying in between. However, on other WFPT scale results reported there (Holtzman, et al., 1971, Table 2) architects are most deviant on six of the seven significant scales.

MacKinnon's discussion of creative architects (1962) indicates many personality characteristics similar to those of artists and it may be noted that the art scale, which effectively distinguishes creative from representative architects, is positively correlated with origence. Further, he reported elsewhere that engineers score fairly low on the art scale (MacKinnon, 1961).

Finally, correlations between SVIB occupational scales and composite scores for origence and intellectence based on the special ACL, SVIB, and MMPI scales for gifted adolescent males were computed and are shown in Table 2.

TABLE 2
CORRELATIONS OF THREE SVIB OCCUPATIONAL SCALES WITH
COMPOSITE SCORES FOR INTELLECTENCE AND ORIGENCE

	Intellectence	Origence
Artist	.36	.45
Architect	.41	.25
Engineer	.32	.35

Considering all the evidence, it seems likely, then, that the engineers might fall significantly lower on both OR and IN while the artists and the architects would lie relatively close together on both scales.

Table 1 shows that these predictions are confirmed. Significant F's appear for both scales with the engineers' means lowest on IN, 34.27, and on OR, 29.88. The architects fall slightly higher on IN than the artists, 40.17 versus 38.04, and also on OR, 48.10 versus 46.89. The differences between these means, however, are not significant: t's are 1.38 and .29 respectively.

Configuration of these three WFPT scales effectively differentiates outstanding subjects selected on the basis of contrasting modes of visual experience in their fields. Although the artists and the architects are similar on IN and OR, they differ on CF; the engineers and the architects are alike on CF but dissimilar on IN and OR.

Statistics are available for another occupational group not part of the previous study, that might on *a priori* grounds be expected to manifest a differential pattern of scores. Chamber of Commerce managers, N = 54, attending a special training program took a battery of personality tests including the WFPT. Statistics for this group are shown in Table 3. The managers score considerably higher than the present subjects on CF, somewhat lower on IN, and remarkably lower on OR.

Additional comparisons may be made with two collegiate groups also shown in Table 3, a mixed group of students in a Tests and Measurements course and a group comprising members of nine different athletic teams studied by Coffman (1972). Although the groups are similar on CF and OR, they differ on IN with the athletes falling significantly lower ($t = 6.6$, $p = .0001$) on intellectence. Thus, the patterning of IN, OR, and CF scores seems to distinguish various groups in ways that are consistent with expectations based on knowledge of their characteristics.

TABLE 3

MEANS AND STANDARD DEVIATIONS ON WFPT SCALES FOR THREE ADDITIONAL GROUPS

	Chamber of Commerce Managers (N=54)		Students (N=259)		College Athletes (N=137)	
	M	SD	M	SD	M	SD
CF: Conformance	28.72	4.53	26.30	5.10	25.26	5.22
IN: Intellectence	33.76	4.88	32.27	7.66	27.40	6.65
OR: Origence	17.04	11.94	43.59	19.22	41.62	17.24

As noted above, the personality model implies that the OR and IN scales should be psychometrically independent. This interpretation is born out by the three non-significant correlations, computed separately for the groups of artists ($r = .11$), architects ($r = .07$), and engineers ($r = -.08$). Such is true for two of the additional groups as well: managers have a nonsignificant correlation of $-.21$ while the larger and more heterogeneous student group shows a correlation of $.09$. For the athletes, the scales are significantly related ($r = -.25$, $p = .01$), however, although this is probably a result of conjoint differences on both scales. Team-sport sub-groups fell lower on IN and at the same time higher on OR than individual sport subgroups.

The scales are uncorrelated in two other groups. For 156 unselected female undergraduates in a liberal arts college the r was $.004$ (Muriel C. Elliott, personal communication, 1972). An r of $.05$ was obtained for 100 psychiatric patients in a Veterans Administration facility. It seems likely, then, that IN and OR will prove to be relatively independent in terms of correlation for general or unselected groups.

Further implications for the use of these special WFPT scales are suggested by a number of findings from different sources. Wrightsman and Cook (1965) reported that CF was positively related to measures of dogmatism, rigidity, social acquiescence, and agreeing response set. In an unpublished study of campus activities for 23 sorority members CF was correlated with conformity in dress ($r = .47$, $p = .05$). Lim and Ullman (1961) found a significant negative relationship in psychiatric patients between CF and the paranoia scale of the MMPI.

The CF scale seems related to a general dimension of conventionality or typicality of response comprising behavior as diverse as social attitudes, women's fashion, psychiatric symptomatology, and legal delinquency. It holds promise of utility in personality assessment where adherence to group norms and acceptance of commonly accepted practices is of research interest.

Although the newly developed IN and OR scales have not yet been widely used, some preliminary analyses made on the Tests and Measurements students referred to above may be of interest since they are consistent with the intellectence/origence model proposed. Four subgroups were formed by considering the two scales conjointly and cutting at the median for each.

The group high on OR but low on IN finished work during a class period more rapidly than the others but made more careless errors. They were less punctual in attendance and in time of turning in outside assignments.

Those high on both scales showed elevations on the Flexibility and Femininity scales of the California Psychological Inventory (CPI). They were more often classified as "intuitive" on the Myers-Briggs Type Indicator test of Jung's functional typology.

The group low on both scales was more punctual and prompt in completing outside work. They were highest on CPI scales for Achievement via Conformance, Communality, and Self-control. They fell into Jung's "sensing" type.

The low OR/high IN group was highest on CPI Intellectual Efficiency and scored relatively higher on verbal and nonverbal intelligence tests. They were more methodical and accurate in completing tasks.

These scales should be of use in personality assessment since they show potentiality for research in the areas of intelligence, creativity, and everyday classroom performance as well as for occupational interest.

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